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(54) Title of Invention: Telephone Switching Device with Forwarding Destination Time Switching Function

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(72) Inventor

Makoto Hokari

NEC Corp., 1-33, 5-chōme, Shiba, Minato-ku, Tokyo

(71) Applicant

NEC Corporation

1-33, 5-chōme, Shiba, Minato-ku, Tokyo

(74) Agent: Susumu Uchihara, Patent Attorney

SPECIFICATIONS

1. Title of the Invention

Telephone Switching Device with Forwarding Destination Time Switching Function

2. Claims

A telephone switching device with forwarding destination time switching function characterized by an electronic switching device which employs a call store and forward program, and which is further characterized by

a call forward information memory which possesses a memory area for each subscriber in which setting flags and call forward service information for a plurality of groups with each group consisting of an initiation time, a termination time and a call forward destination subscriber telephone number for the call forward service,

and a central processing unit which, when the subscriber enters the initiation time, the termination time, and the call forward destination subscriber telephone number for the call

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forward service, records such information in the memory area for the individual subscriber in the call forward service memory and sets a setting flag, and when an incoming call arrives for a subscriber for whom a call forward destination has been recorded, if a setting flag has been set in the memory area for the individual subscriber in the call forward service memory, and if a call forward destination subscriber telephone number has been recorded for the present time, being a time between the initiation time and the termination time for the call forward service, forwards the incoming call to that call forward destination subscriber telephone number, and if not, routes the incoming call to the called party in the normal manner, and when a request to cancel the call forward service is received from a subscriber for whom the call forward service has been set, clears the memory area for that subscriber in the call forward area.

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3. Detailed Description of the Invention

Applicable area of industry

This invention relates to a call forwarding service for electronic switching devices which employ call store and forward programs.

Prior art

Hitherto, call forwarding services of this type automatically forwarded incoming calls to subscribers to subscriber telephone numbers specified by the subscriber, when the subscriber specified as a call forwarding destination a subscriber telephone number, in order that incoming calls to the subscriber, when for example the subscriber was absent, would be forwarded.

Deficiency addressed by the present invention

Call forwarding services of the prior art as described in the foregoing were always restricted to one destination which was set by the subscriber as the call forwarding destination, and hence if for example, a subscriber wished to redirect incoming calls during his absence to Meeting Room A from 10:00 AM to 12:00 PM, and to Meeting Room B from 12:00 PM to 15:00 PM, the subscriber had to re-set the call forwarding destination to Meeting Room B at the conclusion of the meeting in Meeting Room A, and hence the method of the prior art was burdensome.

Means employed in order to overcome such deficiency

The electronic switching device envisaged by the present invention possesses a call forward information memory which possesses a memory area for each subscriber in which setting flags and call forward service information for a plurality of group with each group consisting of an initiation time, a termination time and a call forward destination subscriber telephone number for the call forward service.

and a central processing unit which, when the subscriber enters the initiation time, the termination time, and the call forward destination subscriber telephone number for the call forward service, records such information in the memory area for the individual subscriber in the call forward service memory and sets a setting flag, and when an incoming call arrives for a subscriber for whom a call forward destination has been recorded, if a setting flag has been set in the memory area for the individual subscriber in the call forward service memory, and if a call forward destination subscriber telephone number has been recorded for the present time, being a time between the initiation time and the termination time for the call forward service, forwards the incoming call to that call forward destination subscriber telephone number, and if not, routes the incoming call to the called party in the normal manner, and when a request to cancel the call forward service is received from a subscriber for whom the call forward service has been set, clears the memory area for that subscriber in the call forward area.

Action

Thus the call forward destination can be switched automatically at the time specified by the subscriber, and a call forwarding service can be specified in accordance with the expectations of the subscriber.

Practical embodiment

The following is a description of a practical embodiment of the present invention by means of reference to the diagrams.

Figure 1 shows a practical embodiment of an electronic switching device as envisaged by the present invention, and Figure 2 is a detailed diagram of the memory area 7 of the call forwarding information memory 3.

The telephone line switch 1 serves subscribers (internal lines) 4 to 6 and is controlled by the central processing unit 2. The central processing unit 2 possesses a call forwarding information memory 3 and the call forwarding information memory 3 maintains memory areas 7 which correspond to each subscriber (internal line). A memory area 7 consists of a setting flag 9 which indicates whether or not a call forwarding service has been set, a call forwarding service initiation time 10, a call forwarding service termination time 11, and a call forwarding destination subscriber telephone number 12, and an initiation time 10 and a termination time 11 for such call forwarding service and a call forwarding destination subscriber telephone number 12 form one group, and the memory area 7 possesses memory regions 13, 14 and 15 which permit the setting of up to three groups.

The following is a description of the operation of the practical embodiment.

The subscriber (internal line) **4** enters the forwarding destination subscriber telephone number and the periods of time during which forwarding is required to such number.[1] For example, if calls are to be forwarded to internal line '4211' from 10:00 AM until 12:00 PM, the central processing unit **2**, to which such information has been entered, records this information in the memory area **7** which corresponds to the subscriber (internal line) **4** in the call forwarding information memory **3**. Thus the setting flag = '1', the call forwarding service initiation time **10** = '10:00', the call forwarding service termination time **11** = '12:00', and the call forwarding destination subscriber telephone number **12** = '4211' are recorded. Three call forwarding destinations can be recorded for the call forwarding destination, and when such input is made, the central processing unit **2** checks that there is no duplication during the period of time from the time for the initiation of the call forwarding service **10** and the time for the termination of the call forwarding service **11**.

When an incoming call arrives for the subscriber (internal line) **4** for which a call forwarding destination has been recorded, the central processing unit **2** examines the setting flag **9** and determines whether the incoming call forwarding service is set, and reads the current time from the timer **8**, and if the current time is time for the initiation of the call forwarding service **10** ≤ present time ≤ time for the termination of the call forwarding service **11**, forwards the incoming call to the call forwarding destination subscriber telephone number **12** specified by the service user. In this case, if the present time is not within the period of time for which the call forwarding service is in effect, the central processing unit **2** examines the other two memory areas in order to determine whether or not a call forwarding destination has been specified for other periods of time. Then, if the current time is within a period of time for which the call forwarding service is in effect, the central processing unit **2** forwards the incoming call to that subscriber telephone number. If the present time is not included within any of the three periods of time during which the call forwarding service is in effect, the incoming call is not forwarded, and is routed in the normal manner to the subscriber (internal line) **4** of the called party. default mode However, if the central processing unit **2** has received from the subscriber (internal line) **4** a request to cancel the call forwarding service, the central processing unit **2** clears the memory area **7** for the subscriber (internal line) **4**. Incoming calls that are received for the subscriber (internal line) **4** after such cancellation are routed to the called party in the normal manner.

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[1] The Japanese grammar is faulty here; it leaves open whether the subscriber must enter the information *from the subscriber's own terminal*. - Translator

Effects of the present invention

The present invention as described in the foregoing has the effect of enabling the specification of call forwarding services according to the expectations of the subscriber, and enables the automatic switching of calls to the call forwarding destination during the period of time specified by the subscriber, by enabling the specification of multiple call forwarding destination subscriber telephone numbers for different periods of time for subscribers under the electronic switching device.

4. Simplified Description of the Diagrams

Figure 1 is a relay diagram which illustrates a practical embodiment of the electronic switching device envisaged by the present invention, and Figure 2 is a detailed diagram of a memory area within the call forwarding information memory 3.

1 ... Telephone line switch, 2 ... Central processing unit, 3 ... Call forward information memory, 4, 5, 6 ... Subscribers (internal lines), 7 . . Memory area for individual subscriber, 8 ... Timer, 9 ... Setting flag, 10 ... Time for the initiation of the call forwarding service, 11 ... Time for the termination of the call forwarding service, 12 ... Call forwarding destination subscriber telephone number, 13, 14, 15 ... Single groups of call forwarding service information blocks

Applicant: NEC Corporation
Agent: Susumu Uchihara, Patent Attorney

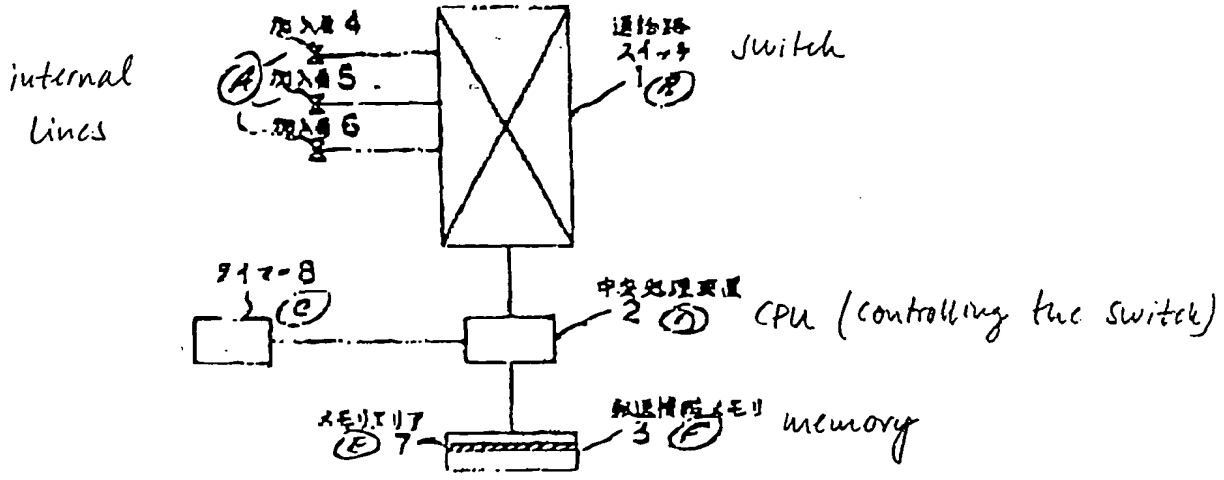

Figure 1

A: Subscriber; B: Telephone line switch; C: Timer; D: Central processing unit; E: Memory area; F: Call forwarding information memory

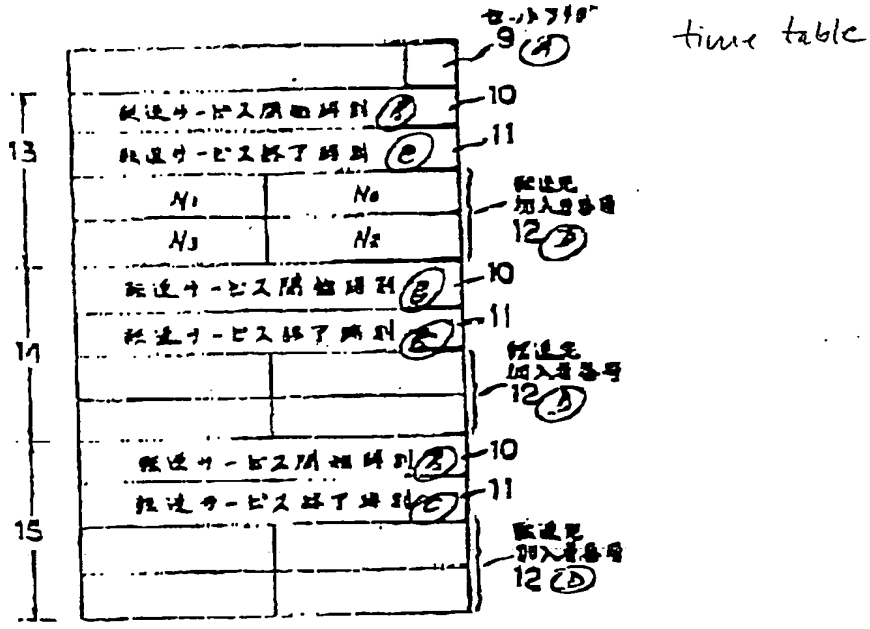

Figure 2

A: Setting flag; B: Call forwarding service initiation time; C: Call forwarding service termination time; D: Call forwarding destination subscriber telephone number